CLAIMS

1. An optical modulation converter (10) for converting the modulation format of an optical input signal characterized by a birefringent medium (14) with a selected differential group delay between its two main axes of symmetry through which the optical input signal is passed to be separated into two optical components each travelling along one of the main axes of the medium at a different group velocity.

2. A converter in accordance with claim 1 characterized in that the birefringent medium (14) is selected on the basis of the input signal bit rate such that the differential group delay introduced by the birefringent medium is substantially equal to the bit period of the signal.

3. A converter in accordance with claim 1 or claim 2, and further comprising a polarization controller (13) operable to cancel random polarization fluctuations in the optical input signal before it is applied to the birefringent medium.

4. A converter in accordance with any preceding claim, in which the birefringent medium (14) is a polarization maintaining fibre. ..

5. A converter in accordance with claim 1 and further comprising an optical isolator (15) before the input of the birefringent medium (14).

6. A converter in accordance with any preceding claim, in which when the optical input signal to be converted is phase-modulated and the birefringent medium is selected such that the group delay is such that the signal output from the birefringent medium is a corresponding

polarization-modulated signal.

7. A converter in accordance with any preceding claim, in which when the optical input signal to be converted is phase-modulated with a linear polarization it is coupled at 45° to the main axes of the birefringent medium.

8. A converter in accordance with claim 6, and further comprising at the output of the birefringent medium (14), a second conversion stage (18, 19) comprising a polarization-sensitive device (19) for converting the polarization-modulated signal into a corresponding intensity-modulated signal.

9. A converter in accordance with claim 7 or claim 8, in which the polarization-sensitive device (19) is a polarizer or a polarization splitter.

10. A converter in accordance with any one of claims 7 to 9, and further comprising a second polarization controller (18) operable to cancel random polarization fluctuations in the optical signal before it is applied to the polarization-sensitive device (19).

11. A converter in accordance with any one of claims 7 to 10, and further comprising a photodetector (21) at the output of the second stage for detecting the intensity-modulated signal.

12. A converter in accordance with claim 6, in which the differential group delay of the birefringent medium is selected to be substantially equal to the bit period of the optical input signal to thereby convert the phase-modulated input signal into an intensity-modulated non return to

zero format.

13. A converter in accordance with claim 6, in which the differential group delay of the birefringent medium is selected to be sufficiently less than the bit period of the input signal to thereby convert the phase-modulated input signal into an intensity-modulated return to zero format.

14. A method for optical conversion of the modulation format of an optical signal characterised by: passing the optical signal through a birefringent medium with a selected differential group delay between its two main symmetry axes to separate it into two optical components each travelling along one of the main axes of the medium at a different group velocity.

15. A method in accordance with claim 14, in which when the input signal to be converted is phase-modulated and comprising selecting the differential group delay of the birefringent medium such that the signal output by the birefringent medium is a corresponding polarization-modulated signal.

16. A method in accordance with claim 15, and further comprising applying the polarization-modulated signal to a polarization-sensitive device to convert it into an intensity-modulated signal.

17. A method in accordance with any one of claims 14 to 16, and comprising selecting the differential group delay of the birefringent medium on the basis of the bit rate of the optical input signal such that it is substantially equal to the signal bit period.

18. An optical signal receiver for detecting an phase-modulated optical input signal characterised by a first optical signal modulation format conversion stage comprising a birefringent medium with a selected differential group delay between its two main symmetry axes through which the optical signal is passed to separate it into two components each travelling along one of the main axes of the medium at a different group velocity to obtain a corresponding polarization-modulated signal; a second conversion stage comprising a polarization-sensitive device for converting the polarization-modulated signal into a corresponding intensity-modulated signal and a photodetector for detecting the intensity-modulated signal.